Appl. No. 10/648,908 Reply to Office action of August 11, 2005

## Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

## Listing of Claims:

1. (currently amended) An implantable medical electrical lead, comprising:

an elongated body terminating at the distal end with an end wall and including a proximal end, a distal end, and a conductor extending from the proximal end toward the distal end, and an insulative sheath; and

an electrode at the distal end of the elongated body adapted for pacing stimulating myocardial tissue via intimate contact with a surface of the electrode. the electrode including:

an insulative housing including a closed cavity and a port;

a conductive structure defining a closed cavity distal of the distal end wall of the elongated body and being electrically coupled to the conductor, the cavity being enclosed within a first electrode surface;

an insulative housing around the conductive structure and having a port that circumscribes a second electrode surface formed within the cavity, coupled to the conductor and including an electrode surface contained within the cavity;

an ionically conductive fluid medium filling the cavity and being in intimate contact with the first electrode surface; and

an insulated helical fixation member coupled to the insulative housing distal and of the body and extending distally therefrom from the distal and:

wherein, when a current is delivered, via the conductor, to the electrode surface contained within the cavity, a first current density is generated at the first electrode surface and a second current density is generated at the second electrode surface out from the port of the insulative housing, the first current density being smaller than the second current density; and

Appl. No. 10/648,908 Reply to Office action of August 11, 2005 Page 4

when the helical fixation member is engaged in tissue, the port second electrode surface forms a high impedance and low polarization tissue-stimulating electrode.

## 2. (canceled)

- 3. (currently amended) The lead of claim [[2]] 1, wherein the second electrode surface area is approximately flush with the port.
- 4. (currently amended) The lead of claim [[2]] 1, wherein the second electrode surface area protrudes from the port.
- 5. (currently amended) The lead of claim 4, wherein the second electrode surface is adapted to pierce tissue when the helical fixation member is engaged in tissue.
- 6. (cancelled)
- 7. (currently amended) The lead of claim [[2]] 1, wherein the conductive structure formed within it the cavity comprises a proximal extension of the helical fixation member.
- 8. (currently amended) The lead of claim [[2]] 1, wherein the conductive structure fermed within the cavity comprises a stud joining the helical fixation member to the conductor.
- 9. (previously presented) The lead of claim 1, wherein the port of the insulative housing has a cross-sectional area between approximately 0.1 square millimeters and 4.0 square millimeters.

Appl. No. 10/648,908 Reply to Office action of August 11, 2005 Page 5

- (currently amended) The lead of claim 1, wherein the first electrode surface of the conductive structure is approximately greater than or equal to approximately 10 square millimeters.
- (currently amended) The lead of claim 1, wherein the conductive structure formed within it the cavity comprises a proximal extension of the helical fixation member.
- (currently amended) The lead of claim 11, wherein the helical fixation member includes an un-insulated zone forming a second third electrode surface distal from the port <del>from which the second current density is generated</del>.
- 13. (canceled)
- (previously presented) The lead of claim 1, wherein the ionically conductive medium filling the cavity comprises a hydrogel.
- 15. (previously presented) The lead of claim 1, wherein the ionically conductive medium filling the cavity comprises a saline solution.
- 16. (previously presented) The lead of claim 1, wherein the helical fixation member is retractable into the insulative housing and extendable therefrom.
- 17. (previously presented) The lead of claim 1, wherein the electrode surface of the conductive structure comprises platinum black particles.
- 18. (currently amended) The lead of claim 1, wherein the electrode surface of the conductive structure comprises an iridium-oxide.

- 19. (currently amended) The lead of claim 1, wherein the electrode surface of the conductive structure comprises a ruthenium-oxide.
- 20. (currently amended) The lead of claim 1, wherein the electrode surface of the conductive structure comprises titanium-nitride.
- 21. (previously presented) The lead of claim 1, further comprising a steroid-loaded MCRD formed about the insulative housing in proximity to the port.
- 22. (previously presented) The lead of claim 1, wherein the insulated helical fixation member comprises an oxide-coated tantalum.
- 23. (currently amended) An implantable medical electrical lead, comprising: an elongated body including a proximal end, a distal end, and a conductor

extending from the proximal end toward the distal end; and

an electrode at the distal end of the elongated body adapted for pacing myocardial tissue via intimate contact with a surface of the electrode, the electrode including:

an insulative housing formed about the distal end of the body and including a closed cavity and a port;

a conductive structure formed within the cavity, coupled to the conductor and including a first-electrode surface contained within the cavity and a second electrode surface circumscribed by the port; and

an ionically conductive fluid medium-filling the cavity in intimate contact with the first-electrode surface:

wherein means, when a current is delivered[[,]] via the conductor[[,]] to the first electrode surface contained within the cavity, for producing a first current density is generated at the a first electrode surface and a second current density is generated at the a second electrode surface, the first current density being smaller than the second current density so that the second electrode surface

Appl. No. 10/648,908 Repty to Office action of August 11, 2005 Page 7

circumscribed by the port forms a high impedance and low polarization stimulating electrode.

24. (currently amended) The lead of claim 23, wherein the <u>current density</u> generating means comprises:

a conductive structure defining a closed cavity distally of distal end wall of the elongated body and electrically coupled to the conductor, the cavity being enclosed by a first electrode surface;

an insulative housing overlaying the conductive structure and having a port to circumscribe a second electrode surface; and

an ionically conductive fluid medium filling the cavity in intimate contact with the first electrode surface second electrode surface area is approximately flush with the port.

25. (currently amended) The lead of claim [[23]] 24, wherein the second electrode surface area protrudes from the port.

## 26. (canceled)

- 27. (currently amended) The lead of claim [[23]] <u>24</u>, wherein the second electrode surface of the conductive structure has a surface area between approximately 0.1 square millimeters and 4.0 square millimeters.
- 28. (currently amended) The lead of claim [[23]] 24, wherein the first electrode surface of the conductive structure is approximately greater than or equal to approximately 10 square millimeters.
- 29. (currently amended) The lead of claim [[23]] 24, wherein the ionically conductive medium filling the cavity comprises a hydrogel.

Appl. No. 10/648,908 Reply to Office action of August 11, 2005 Page 8

- 30. (currently amended) The lead of claim [[23]] 24, wherein the ionically conductive medium filling the cavity comprises a saline solution.
- (currently amended) The lead of claim [[23]] 24, wherein the first electrode surface of the conductive structure comprises platinum black particles.
- 32. (currently amended) The lead of claim [[23]] 24, wherein the first electrode surface of the conductive structure comprises an iridium-oxide.
- (currently amended) The lead of claim [[23]] 24, wherein the first electrode surface of the conductive structure comprises a ruthenium-oxide.
- 34. (currently amended) The lead of claim [[23]] 24, wherein the first electrode surface of the conductive structure comprises titanium-nitride.
- 35. (currently amended) The lead of claim [[23]] 24, further comprising a steroidloaded MCRD formed about the insulative housing in proximity to the port.